

## **REMARKS**

In response to the above-identified Office Action, Applicants seek reconsideration thereof. In this response, Applicants do not amend, add, or cancel any claims. Claims 5-9 has been withdrawn from consideration. Accordingly, Claims 1-4 and 10-13 are pending.

### **I. Claims Rejected Under 35 U.S.C. § 103(a)**

Claims 1, 2, 10, and 11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,229,947 issued to Vawter et al. ("Vawter"). Applicants respectfully traverse the rejection.

To establish a *prima facie* case of obviousness, the Examiner must show the cited references, combined, teach or suggest each of the elements of a claim. Among other elements, Claim 1 recites "a second waveguide formed on the first waveguide....wherein the second waveguide has a taper shape having a width that is gradually widened in a direction along the waveguide at a start portion, and the start portion of the second waveguide has a mesa structure or a reverse-mesa structure." Applicants submit that Vawter at least does not teach or suggest these elements.

The Examiner admits that Vawter does not disclose the mesa or reverse-mesa structure, but asserts that the "radiused rib" disclosed in FIG. 8 and col. 6, lines 40-52 may be reasonably interpreted to be a mesa structure. Applicants submit that the Examiner's interpretation is misconstrued. The cited passage clearly define the term "radiused" as the rounded transition between the vertical rib sidewall and the horizontal mesa surface (col. 6, lines 40-42). Vawter does not explicitly disclose that the mesa-type structure underneath the rib waveguide is a waveguide. Assuming for the sake of argument that the mesa-type structure is the first waveguide and the rib waveguide is the second waveguide, the disclosure of Vawter can at most be characterized as teaching two waveguides having rounded transition at their junctions. Vawter discloses that the rounded transition is obtained by etching, and the etching of both the rib waveguide and mesa used chloride reactive-ion beam etching (col. 7, lines 5-10). The result of the etching is the radiused rib

as shown in FIG. 8 and FIG. 8A, which is totally unrelated to the claimed mesa or reverse-mesa structure. Thus, the radiused rib is totally unrelated to the shape at the start portion of the second waveguide.

Moreover, even if the concept of the radiused rib is applied to the start portion of the rib waveguide, the start portion would at most have a rounded shape at the transition to the first waveguide. There will be no mesa or reverse-mesa structure at the start portion as claimed. Thus, Vawter does not teach or suggest each elements of Claim 1.

Analogous discussion applies to Claim 10. Accordingly, reconsideration and withdrawal of the obviousness rejection of Claims 1 and 10 are requested.

Claims 2 and 11 depend from independent Claims 1 and 10 and incorporate the limitations thereof. Thus, at least for the reasons mentioned above, Vawter does not teach or suggest these claims. Moreover, Vawter at most discloses that the radius of the radiused rib is below 1  $\mu\text{m}$  but fails to mention anything about the width of the mesa structure or the reverse-mesa structure as claimed. Thus, Vawter does not teach or suggest Claims 2 and 11 for this additional reason. Accordingly, reconsideration and withdrawal of the obviousness rejection of Claims 2 and 11 are requested.

## **II. Allowable Subject Matter**

Applicants note with appreciation the Examiner's indication that Claims 3, 4, 12, and 13 would be allowable if rewritten in independent form. Applicants respectfully submit that as Claims 1 and 10 are in condition for allowance for the reasons mentioned above, their dependent claims are allowable for at least the same reasons. Accordingly, reconsideration and withdrawal of the objection of Claims 3, 4, 12, and 13 are requested.

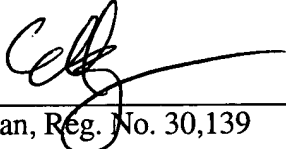
### CONCLUSION

In view of the foregoing, it is believed that all claims now are now in condition for allowance and such action is earnestly solicited at the earliest possible date. If there are any additional fees due in connection with the filing of this response, please charge those fees to our Deposit Account No. 02-2666. If the Examiner believes that a telephone conference would be useful in moving the application forward to allowance, the Examiner is encouraged to contact the undersigned at (310) 207 3800.

Respectfully submitted,


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